PRICE
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October 14, 2016

To: Carson Young
Solitude Builders
801-452-5020

Pg 1 of 1

Re: Door Installation in Existing Window Locations
Nordic Valley Ski Lodge
3567 Nordic Valley Way
Eden, Utah

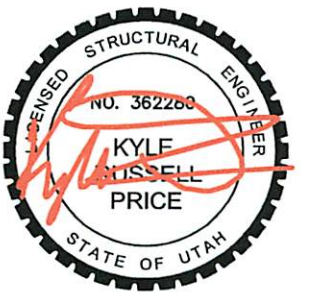
Carson,

On October 13th (yesterday) I visited the above ski lodge with you to observe conditions and recommend specifications to cut (2) door ways from existing windows into the foundation on the south side. I have attached (2) sketches, one with recommended cut and modifications per your request, and the other of the south lodge elevation showing the cut locations.

Also see calculations attached. I have included a 50 psf snow load and 100 psf floor live load in design. No other engineering for the lodge was provided other than the doors. Modifications follow the 2015 IBC chapter 34 and consequently the 2012 IEBC.

If you have any questions concerning this letter please feel free to contact me at anytime.
Sincerely,

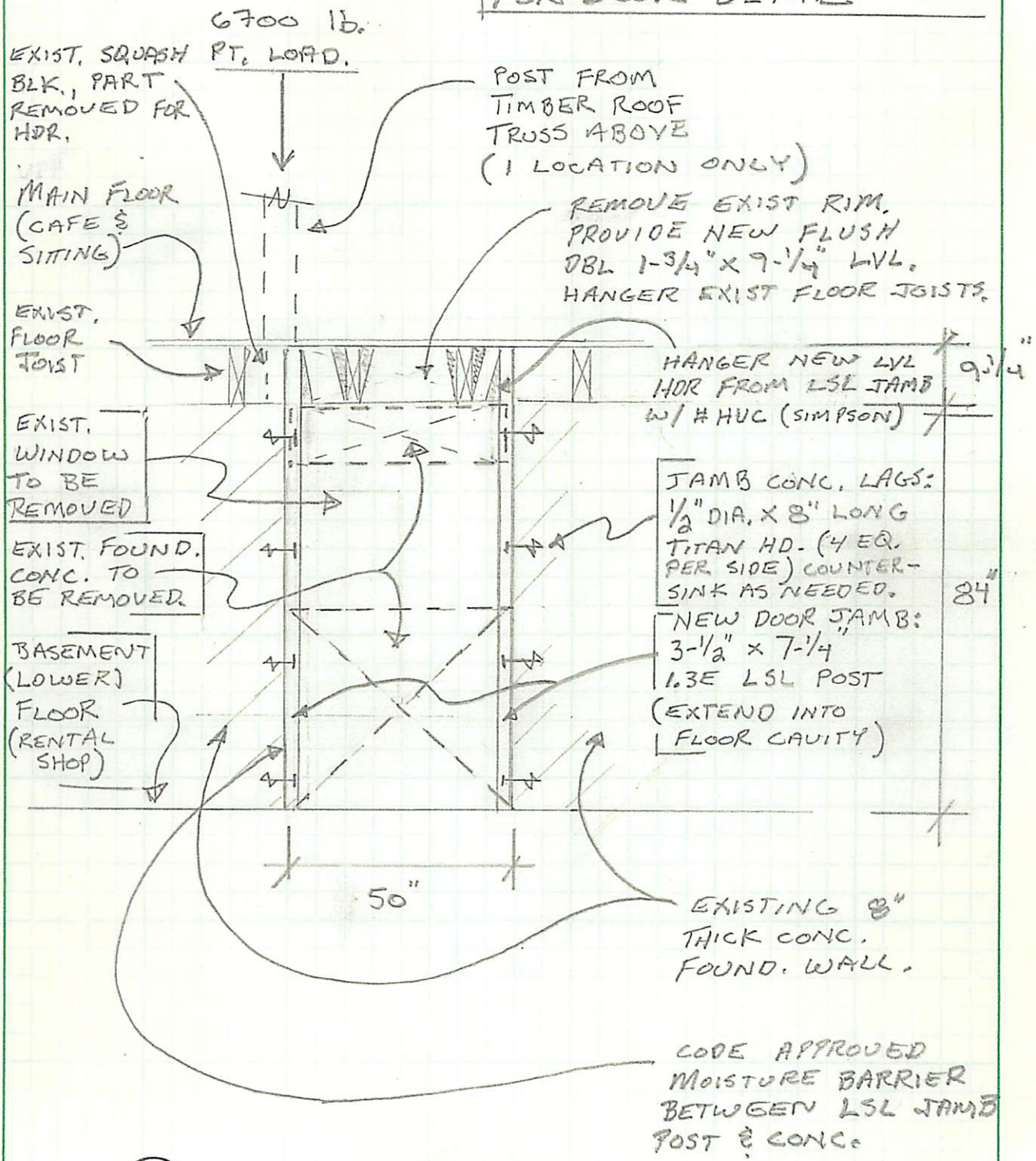
Kyle Price, S.E.



10/14/2016

10/13/16	NORDIC VALLEY SKI LODGE	K. PRICE

FOUNDATION REMOVAL FOR DOOR DETAIL

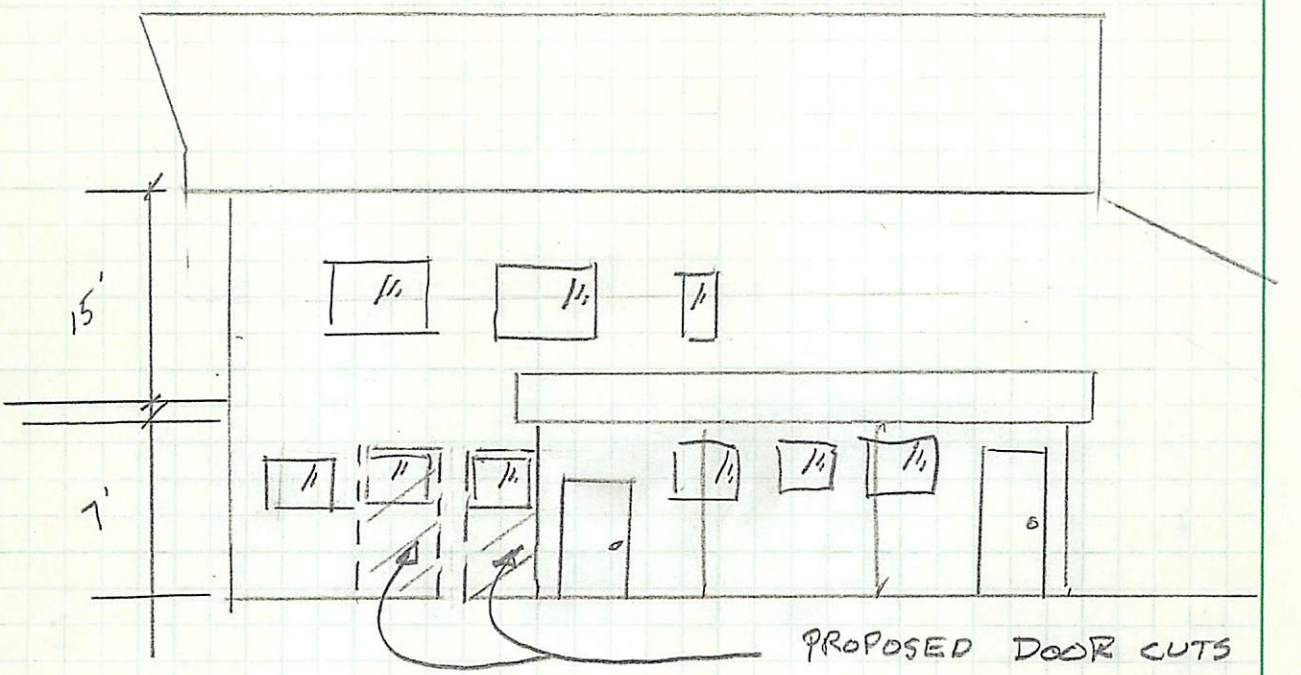


(A) INTERIOR ELEVATION
(2 DOORS TYP.)
NOT TO SCALE

TOPS

10/14/16	SOLITUDE BLDRS	K. PRICE

NORDIC SKI LODGE



(B) ELEVATION SKETCH
SOUTH SIDE

Project: Solitude Nordic Lodge Door Mod Project No.:
Design: K. Price
Date: 10/14/16 Sheet: of

DESIGN CRITERIA

Structure Type: Risk Category II, Light Wood Framed, Concrete Foundation

Design Codes: 2015 IBC, 2012 IEBC

Dead Loads:

20	psf	for	Roof Structure
10	psf	for	Walls (Siding, Stucco)
100	psf	for	Concrete Foundation

Live Loads:

20	psf	for	Roof Structure
100	psf	for	Floors

Snow Loads:

Pg: 70 Ce: 1 Ct: 1 I: 1
Cs: 1

Ps=> (Pg*Cs*Ce*Ct*I*0.7)
Ps*= 50 psf

Seismic Loads: No Seismic Design provided other than out of plain loading for Jamb Posts.
No Engineering provided for any other portions of Lodge

Wind Loads: No Wind Design provided other than out of plain loading for Jamb Posts.
Exposure: C Risk Category: II
Wind Speed (3 sec. Gust): 120 mph

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Deflection Criteria:

(TL)		(LL)			
L/	240	L/	360	for:	Roof Structure
L/	240	L/	480	for:	Floor Structure
L/		L/	240	for:	Exterior Walls
L/		L/		for:	
L/		L/		for:	

FOUNDATION CRITERIA

Soil Report:	Not Available			
By:	Not Available			
Date of Report:	Not Available			
Proj No. of Report:	Not Available			
Foundation Type:	Concrete Spread Footing			
Bearing Pressure:	Qa = (Assumed)	1500	psf	
Minium Depth: Below:	See Plans Exterior Finished Grade			
Passive Pressure:	Yp = (Assumed)	300	pcf	
Coeff. of Friction:	0.4	alone	0.3	with passive
Active Pressure:	Ya = (Assumed)	35	pcf	

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MATERIAL SPECIFICATIONS FOR REINFORCING STEEL, CONCRETE AND MASONRY

Reinforcing Steel: ASTM A615, Grade 60
ASTM A706, Grade 60 Weldable Rebar

Welded Wire Fabric: ASTM A185

Concrete Strengths:

	(Strength)			
Footings:	3000	psi		
Grade Beams:	3500	psi		
Piles:	n/a	psi		
Caissons:	n/a	psi		
Slabs on Grade:	3500	psi		
Structural Slabs:	3500	psi		
Columns:	n/a	psi		
Walls:	3500	psi		
	(Strength)		(Density)	
Topping over Steel Deck:	3000	psi	150	psf
Topping over Plywood:				
Lightweight:	n/a	psi	n/a	psf
Cellular:	n/a	psi	n/a	psf

Concrete Masonry:

Units: ASTM C90 Medium Weight, Grade N-1

Mortar: Type "S" conforming to IBC Table 2103.7

Grout: Compress. Strength @ 28 days: 1800 psi

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MATERIAL SPECIFICATIONS FOR WOOD FRAMING

Sawn Lumber: Douglas Fir Larch (North)

2 x 4 studs up to 8' 0" long:	Stud Grade
2 x 4 studs over 8' 0" long:	Stud Grade
Other Studs:	Stud Grade
Posts:	Grade #1
Joists:	Grade #2
Beams:	Grade #1
Headers:	Grade #2
Subpurlins:	Grade #1
Purlins:	Grade #1

Sheathing: APA Rated Sheathing

Roof:	Exposure:	I	Structural I	No
Floor:	Exposure:	I	Structural I	No
Shearwalls:	Exposure:	I	Structural I	No
	Exposure:		Structural	

Glued Laminated Beams (GLB): (All laminations Douglas Fir Larch unless noted otherwise)

Simple Spans:	24F-V4
Continuous:	24F-V8

Framing Hardware: Simpson Strong-Tie Connectors

Structural Nails: Common Wire Type or Galvanized Box

Bolts in Wood: ASTM A307 or better

Prefabricated Wood Joists: RE: Plan

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Bending Capacities of Douglas Fir Larch (North):

2 X 10's					
Headers			Joists		
Snow Loads	1075	psi	Snow Loads	1237	psi
Normal Loads	935	psi	Normal Loads	1075	psi
2 X 12's					
Headers			Joists		
Snow Loads	978	psi	Snow Loads	1124	psi
Normal Loads	850	psi	Normal Loads	978	psi
Glu Laminated Members					
24F-V4, 24F-V8					
Snow Loads	2760	psi			
Normal Loads	2400	psi			

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Snow Load Calculations Codes: 2015 IBC 1607, State Amendment, ASCE 7 10

Ground Snow Load, Pg State Amendment R156-56-704

County:	*Weber*	
A :	*5380*	ft.
S :	*63*	psf/100 ft.
Po:	*43*	psf/100 ft.
Ao:	*4.5*	ft./1000

Pg = ⊦ s2*(A - Ao)2)1/2
Pg = ***70*** psf

Roof Snow Load, Ps (Sloped), Pf (Flat) ASCE 7

Slope:	*18*	degrees
Pg:	*70*	psf
Ce:	*1*	
Ct:	*1*	
I:	*1*	
Cs:	*1*	

Pf = 7)*Ce*Ct*I*Pg
*Pf = ***49*** psf

Ps = *Ce*Ct*I*Pg*Cs
*Ps = ***49*** psf **Design Roof Balanced Snow Load** ***50*** **psf**

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Column Calculations W/ Bending
2012 NDS

Input Results **COLUMN** DOOR JAMB

Axial
Fc= 1835.00 psi

Cd= 1.00
Cm= 1.00
Ct= 1.00
CF= 1.00 (built up col)
Ci= 1.00

F'c= 1835.00 psi
(Cd*Cm*Ct*Cf*Ci*Cp)

Cp= 0.75
((1+(Fce/Fc))/2*C) - (((1+(Fce/Fc))/(2*C))^2 - ((Fce/Fc)/c))^.5

load= 6,700 lbs (max)
Area= 21.75 in2

Fce= 2224 psi
(Kce*E')/(Le/d)^2

Kce= 0.30
E'= 1,300,000 psi
L= 96.0 in
K= 1.0 in
Le= 96.0 in
d= 7.25 in
b= 3.00 in
c= 0.80

1382 psi
308 psi

check OK

F'b= 1700
153

Bending
Fb= 1700.00 psi

tress Ratio 0.15

CD 1.00
CL 1.00
Cv= 1.00
Cfu= 1.00
Cr= 1.00
Ci= 1.00
1.00

check OK

load= 42 plf
Sx= 26.3 in3

Design Vertical Load

		ASD Factor
Roof		
Trib Width	5	
Trib Length	20	
Trib Area	100	
SL	50	0.75
DL	20	
Total Roof	5750	
Floor		
Trib Width	5	
Trib Length	2	
Trib Area	10	
LL	100	0.75
DL	20	
Total Roof	950	
Total Factored PL	6700	

Provide 1 **LSL 1.3E** 3-1/2" x 7-1/4"
Maximum Height: 8.0 ft
Weak Axis Braced at 2.0 ft

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BEAM #1, HDR / BEAM

INPUT

Beam Parameters		*Loading*	LL	DL	Load Dist.	*Deflection Limits*	
Beam Table No.	8	w (plf)	750	310	from left	LL, L/	360
Quantity	2	W from left (lbs)	0	0	wa, right wc,	TL, L/	240
Span (ft)	4.0	W from right (lbs)	0	0	to start wb)		
		W @ mid (lbs)	0	0	(ft.)		
Adjustment Factors		PL 1 (lbs)	0	0	0.0		
CD	1.00	PL 2 (lbs)	0	0	5.0		
CM*CT*CI	1.00	PL 3 (lbs)	0	0	0.0		
CL	1.00						
CF*CV	1.00						
CFU*CR	1.00						

RESULTS

Beam Description: 2 | 1-3/4" x 7-1/4" 1.9E Microllam LVL

Beam Properties		*Req'd Properties*		*Properties Adequate*?*
Sx (in3)	30.66	Sx (in3)	9.78	Yes
Area (in2)	25.38	Area (in2)	7.44	Yes
Ix (in4)	111			
E' (psi)	1900000	*Calc'd Loads & Stresses*		
F' b (psi)	2600	Max Moment (lb*ft)	2,120	
F' v (psi)	285	Reaction L (lbs)	2,120	
		Reaction R (lbs)	2,120	

Max. Deflection		*Calc'd Deflection*		
LL (in.)	0.13	LL (in.)	0.02	Yes
TL (in.)	0.20	TL (in.)	0.03	Yes